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New sepsis guidelines urge you to revamp care: Delays can cost lives

Aggressive interventions are needed for first 4 hours in ED

It was easy for ED nurses to recognize signs of septic shock in a 23-year-old woman who had just given birth at St. Clare Hospital in Lakewood, WA: She could barely speak, was hypotensive, hypothermic, and had a grayish coloring.

"I can remember thinking that I had never seen anyone that color that was still alive," says **Victoria Leavitt**, RN, regional nurse educator for emergency services for Franciscan Health System, a three-hospital system in the Puget Sound area.

The woman soon became obtunded and anuric, with extremely low mean arterial pressures despite vasopressors, fluid, and broad-spectrum antibiotics. "It was heartbreaking, as her husband and parents had come to celebrate the birth of their first grandson, and now their daughter was staring death in the face," says Leavitt. "They asked if there was anything that we could do — and we had nothing."

The woman developed coagulopathies and multiple organ failure, and despite emergent surgery, died the next day.

You probably have experienced the same powerless feeling watching septic patients deteriorate rapidly. However, just-published guidelines for severe sepsis and septic shock give you powerful lifesaving tools, says **Maurene A. Harvey**, RN, MPH, CCRN, FCCM, past president of the Des Plaines, IL-based Society of Critical Care Medicine and member of the Surviving Sepsis Campaign's steering committee, which organized the consensus conference that led to the development of the guidelines.[1]

The guidelines call for aggressive intervention during the first four hours in the ED, says Harvey, pointing to research showing dramatically reduced

EXECUTIVE SUMMARY

According to new guidelines for patients with sepsis, the care patients receive in the ED have a dramatic affect on outcomes.

- Start fluid resuscitation and give intravenous antibiotics immediately.
- Don't delay interventions while patients are waiting to be admitted.
- Monitor superior vena cava saturation, and measure serum lactate.

mortality rates. "The mortality rate for sepsis patients can be decreased from 30-60% to 20-40%, so that means one out of three more lives are saved by what we do in the ED," she says.[2]

There are 750,000 annual U.S. cases of sepsis, and about a third of these patients come through the ED, reports Harvey. Sepsis kills 200,000 people annually, and cases have skyrocketed 329% in the past 20 years, due to increased numbers of elderly and immunocompromised patients and widespread use of antibiotics, according to the Atlanta-based Centers for Disease Control and Prevention.

Would the new sepsis guidelines and aggressive interventions in the ED have saved the life of the above patient? "I don't know," admits Leavitt. "But I do know that I would have liked to have had the opportunity to try those treatments. They are making a difference for many patients and decreasing the mortality rates of this truly terrible syndrome."

Don't waste any time

A pneumonia patient comes to your ED with fever, lethargy, and low urine output, but with a normal blood pressure, and is diagnosed as septic. Does this patient wait several hours for an intensive care unit (ICU) bed before monitoring of lactates and hemodynamics starts and fluid resuscitation begins? Delays in these interventions have cost many sepsis patients their lives, emphasizes Harvey.

"In EDs, there is often inadequate recognition of cryptic shock," she says. "ED nurses have not been trained to be aggressive with these patients and often are not equipped to do hemodynamic monitoring."

Patients therefore often are not fully resuscitated until they get to the ICU, which could be hours later, says Harvey. "Early resuscitation is much more effective," she says.

Rapid, goal-directed treatment for sepsis will require a different mindset for ED nurses, stresses Leavitt. "This very much parallels the shift in thinking that occurred with the advent of thrombolytics for stroke," she says. **(For more information on recognizing sepsis, see "Don't let sepsis threaten patients — watch for signs," *ED Nursing*, February 2003, p. 46.)**

Since there is potential to save many lives, don't delay implementing the new guidelines in your ED, urges Harvey. "So many guidelines are written and never make it to the bedside or take years," she says. "It is very hard to take all of the recommendations and turn it into a plan."

To speed implementation, the Boston-based Institute for Healthcare Improvement worked with the Surviving Sepsis Campaign to create "bundles" listing the most important interventions. **(To obtain complete guidelines and sepsis bundles, see resource box on p. 87.)**

"Print this out, put in a clipboard in the ED, and it tells you what to do in the first four hours," recommends Harvey. "Download this tool and bring it to the attention of your managers and directors, because people are dying that don't need to die."

To dramatically improve care of patients with sepsis, follow these recommendations from the guidelines:

- **Draw cultures before giving antibiotics.**

According to the guidelines, you should draw at least two blood cultures, including one percutaneously and one drawn through each vascular access device,

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unless the device was inserted recently, says **Steven D. Glow**, RN, MSN, FNP, nursing faculty at Pablo, MT-based Salish Kootenai College.

"Also, make the presumptive diagnosis without waiting for the culture," advises Harvey.

• Start intravenous antibiotics within one hour.

"Think about how long it usually takes to get stat antibiotics — in some EDs, it could be three hours," says Harvey. "So it not only takes your working quickly to get these things done, but also collaboration with your lab and pharmacy."

• Give immediate fluid resuscitation for septic patients with shock.

Antibiotics still should be given within an hour, but fluid resuscitation must come first, notes Harvey. "Volume is the answer — they need liters and liters, often," she says.

If blood pressure doesn't respond or lactate levels still are elevated, obtain a central venous pressure and give fluids to get the level up to 8-12, and then give vasopressors if there is a mean arterial pressure below 65, says Harvey.

Fluid resuscitation may consist of natural or artificial colloids or crystalloids, according to the guidelines. "There is no evidence-based support for one type of fluid over another," says Glow.

Remember that this syndrome destroys the microvasculature, which causes severe coagulopathies, says Leavitt. "The ED nurse should be vigilant in the ongoing assessment of intravascular fluid status as well as early signs of intravascular coagulopathy such as petechia and purpura," she says.

• Consider use of vasopressors.

Vasopressors preferred by the guidelines are norepinephrine or dopamine, but low-dose dopamine should not be used for renal protection as part of the treatment of severe sepsis, says Glow. "Ionotropic therapy with dobutamine may be helpful when combined with vasopressors to increase cardiac output," he adds.

• Monitor superior vena cava (SVC) saturation for sepsis with shock.

"We were told for years that you could only get this from a pulmonary artery catheter, but research shows that you can measure it from a central venous catheter," says Harvey. "That is good enough to use for early goal-directed therapy in the ED."[2]

Putting in a triple lumen catheter allows you to measure the central venous pressure, administer a significant amount of fluid, and measure venous saturation, she advises. "If the SVC is still under 70% after doing all of the above, give inotropes and possibly blood cells."

• Consider the use of drotrecogin alpha.

This is a recombinant protein with anti-inflammatory, antithrombotic, and profibrinolytic properties used to treat severe sepsis and septic shock, says Leavitt, who cautions that the drug can cause bleeding.[3]

"The patient receiving this drug should meet the definition of severe sepsis or septic shock and be screened for possible contraindications," she says. **(For a complete list of contraindications, go to www.xigris.com/safety.shtml.)**

• Measure serum lactate.

"We now know that about 25% of patients have cryptic shock, which means they are not hypotensive, yet their lactate is up, so they are in shock," says Harvey. "Some EDs are set up to do stat lactate, and some are not. So again, this is a collaborative effort with the lab."

SOURCES/RESOURCE

For more information about caring for sepsis patients in the ED, contact:

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The complete guidelines for sepsis can be downloaded at no cost on the Society of Critical Care Medicine's web site (www.sccm.org). Click on "Professional Resources," "Guidelines," "Guidelines and Practice Parameters," and "**Surviving Sepsis Campaign Guidelines for Management of Severe Sepsis and Septic Shock.**" The Institute for Healthcare Improvement has developed "Four-Hour Sepsis Bundles" for patients with and without septic shock. The Sepsis Bundle is a group of interventions that, when implemented together, achieve significantly better outcomes than when implemented individually. The Sepsis Bundle currently is being tested by several organizations across the United States. They can be accessed at no charge at www.qualityhealthcare.org. Under "Topics," click on "Critical Care," "Sepsis," "Emerging Content," and "Sepsis Bundle."

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3. Bernard GR, Vincent GL, Laterre PF, et al. Efficacy and safety of recombinant human activated protein C for severe sepsis. *N Engl J Med* 2001; 344:699-709. ■

Don't harm patients with high-alert drugs

(Editor's note: This is the first in a two-part series on high-alert medications in the ED. This month, we give specific practice changes to avoid errors. Next month, we'll address how to avoid dosage errors involving heparin, a high-alert drug that is frequently involved with errors in the ED.)

EXECUTIVE SUMMARY

ED patients are at risk for harmful drug errors due to high patient acuity, high patient volumes, and frequent use of high-alert medications, which often cause serious adverse outcomes when given in error. High-alert drugs used in the ED include neuromuscular blockers, insulin products, and thrombolytic agents.

- Do double-checks with high-alert drugs.
- Place warnings on high-alert drugs removed from automated medication dispensing cabinets.
- Reduce the number of concentrations and dosages used in your ED, and use premixed products when possible.

If a physician gave you a verbal order for ".8 morphine" for an infant with a fracture, would you think in terms of volume? One ED nurse did, and gave the child 0.8 cc of a 10 mg/mL syringe of morphine, which amounted to 8 mg.

The child suffered a respiratory arrest and had to be resuscitated, which resulted in a prolonged hospitalization.

This is a true example of a high-alert drug error in an ED, reported to the Huntingdon Valley, PA-based Institute for Safe Medication Practices (ISMP). ED patients are at high risk for all types of drug errors, due to such factors as higher volumes and acuity, according to **Susan F. Paparella**, RN, MSN, director of consulting services for ISMP and former director for critical care and emergency services at Mercy Suburban Hospital in Norristown, PA.

"The frequency of errors with high-alert drugs isn't necessarily greater, but when errors do occur, the harm to patients with these medications is just so great," she says. "Also, we commonly use a lot of high-alert drugs in the ED, such as neuromuscular blocking agents, thrombolytic agents, and insulins."

To avoid high-alert medication errors, follow these proven practices:

• Limit access to high-alert drugs.

This limited access doesn't mean that you won't be able to get the drugs when you need them. The goal is to limit variety and multiple concentrations.

"Instead of 10 neuromuscular blockers, you might have two or three," says Paparella. "This helps you to become familiar with the proper doses and the effects of particular products."

At Sioux Valley Hospital-University of South Dakota Medical Center, concentrations for high-risk infusions such as heparin, insulin, and vasopressors are now standardized, says **Monica Huber**, RN, director of emergency, trauma, and intensive air services. For example, the ED recently standardized insulin drips to 1 unit/ml concentration, and you must have a written physician order to change the concentration, she reports.

• Store high-alert drugs separately.

Neuromuscular blockers might be left on counters where they can be mistaken for saline or another drug, warns Paparella. She recommends segregating refrigerated products such as succinylcholine in a plastic box with a breakaway lock, clearly labeled, "Caution — Paralyzing Agents."

"We have heard of errors that occur when these vials get mixed together in refrigerated storage with other items such as tetanus or vaccines," she says.

If you obtain drugs from an automated medication dispensing cabinet, draw attention to high-alert drugs by using colored tape to differentiate them from others, advises Paparella.

The automated medication dispenser gives warnings when high-alert drugs are removed, says Huber. For example, an auxiliary warning label is placed on all neuromuscular blocking agents stating "Danger-Muscle Paralyzing Agent. Patient must be intubated and mechanically ventilated."

• Label high-alert medications.

Have you ever brought an unlabeled medication to a patient's bedside, gotten distracted, and put it down for just a moment? These can be given to the wrong patient or mistaken for a saline flush or other

SOURCES/RESOURCE

For more information about preventing high-alert drug errors in the ED, contact:

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The ISMP has recently updated its list of high-alert drugs and drug categories. To obtain the current list, go to www.ismp.org. Under "Medication Safety Alerts," click on "Recent Articles." For the date 12/18/2003, click on "ISMP's list of high-alert medications." To voluntarily and anonymously report a medication error to ISMP, go to www.ismp.org. Click on "Error Reporting."

medication, notes Paparella.

"Most nurses would say, 'That would never happen to me,' but unfortunately, those are the kind of errors we hear about all the time," she says. "Although it may take extra time, the labeling is well worth the effort."

• Perform an independent double check.

Should nurses do an independent double-check for every drug?

"No," says Paparella. "Nurses are too busy, and that would be an unrealistic expection. But you must do it for certain high-alert medications that would really cause harm if given in error."

Use these practices, she suggests:

— Even when using a premixed product, bring a second practitioner to the bedside with a copy of the original order to verify the correct patient, drug, dose, concentration, frequency, and route.

— For drugs administered by an infusion pump, double-check the pump setup and rate of infusion.

— Instead of having another person check your calculation, have them independently calculate the same dosage and compare results.

At Brandon (FL) Regional Hospital, all insulin given by infusion is double-checked, says **Catherine Ochab**, RN, director of emergency services. "The nurse gets the order and draws up the insulin in the syringe," Ochab says. "A second nurse comes and checks the chart, medication, and dose."

• Use computerized calculations for weight-based infusions whenever possible.

Nurses frequently use dosage-calculation programs available on the bedside monitors, says Huber. "Pharmacy also will print an infusion rate chart for individual patients if nursing provides them with the patient's weight and drug," she says.

• Only use verbal orders for truly emergent situations.

Orders for high-risk drugs should be written when possible, or repeated and confirmed when taken verbally, says Ochab. "EDs are not always able to have everything written immediately due to emergent situations."

Paparella recommends preprinted standing order sets for high-alert medications such as thrombolytics. "If you absolutely, positively have to take that verbal order, write it down and read it back," she says. "Spell drug name and numbers as clarification. Sixteen can sound like 60." ■

Switch to team nursing and boost staff morale

Do you want to increase satisfaction scores, improve patient care, and boost staff retention all in one shot? Consider switching to a team model of nursing.

"There is a growing trend toward team or zone nursing in the ED," reports **Lisa DiMarco,** RN, BSN, MBA, CEN, administrative director for emergency services at Edward Hospital in Naperville, IL. Morale of nursing staff has dramatically improved since the team model went into effect in August 2000, she reports.

If you are planning to switch to team nursing, consider these significant benefits:

• Nurses help one another more readily.

Previously, attitudes such as "it's not my patient" were all too common, notes DiMarco. "There wasn't as much ownership of what was happening in the ED," she says.

With the team model, if a nurse is caring for a trauma patient while assigned to two other patients, another nurse automatically steps in to cover these rooms for them. "Or a nurse may be precepting that day and is tied up," says DiMarco.

Nurses are more eager to assist their peers without

EXECUTIVE SUMMARY

Team nursing can improve satisfaction of nurses and patients and improve retention.

- Novice nurses are more likely to ask questions, because they are teamed with experienced nurses.
- Nurses don't feel as overwhelmed because workload is shared.
- Average time to see a physician decreased from 45 to 31 minutes.

being asked, says **Randy Schmidt**, RN, charge nurse for the ED. "Often, you will hear a nurse say, 'I'll take that patient,' only to hear another nurse say, 'No, I can take them, you already have three,'" he says.

Now, every nurse knows at least something about all the patients, says Schmidt. "This makes it easier to assist a patient or answer questions when you might not be their primary nurse," he adds. "Assistance is generally acknowledged with a sincere 'thank you,' which is in itself a great morale booster."

• Employee satisfaction scores increase.

Staff satisfaction is measured by South Bend, IN-based Press-Ganey Associates every other year, and an internal survey tool is used during the off years, reports DiMarco. "After we get the results, we sit down and have sessions with staff to talk about problems," she says.

Employee satisfaction ratings for the 2002-2003 year scored in the 58th percentile, a significant increase from two years earlier when it was in the 22nd percentile, reports DiMarco, who attributes this to the team nursing model being implemented.

However, about 10% of nurses still are resistant to the team model, DiMarco acknowledges. "You will always have a handful that never will buy into this, and they do create a lot of stress for the group," she says.

To combat this, insist that resistant nurses be included in any decision-making process, advises DiMarco. "They are not allowed to just complain. If they are going to complain, they have to give a suggestion to fix it."

For instance, several ED nurses complained about doing the lion's share of the workload, and were told to share their concerns directly with their colleagues. "Their tendency is to avoid confrontation and just complain to the management. But we just keep sending them back to the team," says DiMarco.

• Patients are more satisfied.

Although average length of stay has remained stable at 2.5 hours from arrival to discharge, arrival-to-physician times have decreased significantly, says DiMarco. "We were creeping up to 45 minutes, and patient satisfaction at that time was in the 75th percentile," she says. The average time to see a physician now is down to 31 minutes, she reports.

This is because the team model ensures that delays are followed up on, Schmidt explains. "Medications and discharge instructions have been much more timely," he says. "Patients are better informed about their care, plan of further care, and delays."

The ED now boasts three consecutive quarters of patient satisfaction scores in the 98th percentile. "The challenge now is: How we do maintain this and not let it fall back to where it used to be?" says DiMarco.

• The system provides additional mentoring opportunities.

The team concept pairs expert nurses with novice nurses, notes DiMarco. "The thing we were most surprised about was that retention is so much better," she says. "I believe that speaks to the mentoring atmosphere of the team model."

Previously, if a novice nurse needed help but didn't go out of her way to ask, experienced nurses weren't necessarily going to jump in and offer assistance, notes DiMarco.

Now it is much easier for new nurses, interns, and transitional nurses new to ED nursing to approach more experienced nurses, she says. "The preceptors are typically assigned to a new hire and follow that person's schedule."

Having the correct skill mix on each team is key to success, says DiMarco. "The nurse manager does the scheduling and considers individual unit clerks, technicians, nurses, and doctors to make sure there is the right combination of skill mix on the team," she says.

Many of the ED's less experienced nurses have gained significantly in self-confidence, patient care skills, and efficiency, notes Schmidt. "They have been less hesitant to ask questions, and the more experienced nurses have been less reluctant to offer assistance," he says. ■

SOURCES

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Are you missing serious illness in older patients?

An elderly woman presents with a chief complaint of constipation, with few symptoms of acute abdomen. Would you suspect appendicitis in this patient?

You may find a misleadingly benign physical assessment in older patients, despite the presence of a potentially lethal illness, warns **Karen Hayes**, PhD, ARNP, faculty at School of Nursing at Wichita (KS) State University. "Some emergency nurses may feel uncomfortable assessing older adults because of all the challenges and comorbidities that characterize the elderly patient," she notes.

You'll need to be able to recognize an altered and often nonspecific presentation of disease in elderly patients, says Hayes. "By using a heightened index of suspicion with astute assessment skills, the ED nurse may avoid inappropriate triage or missing a serious illness," she adds.

Another challenge is that it is difficult to distinguish the effects of normal aging from serious illness, emphasizes Hayes. "The combined effects of genetics, lifelong health habits, medical problems, environment, and sociocultural influences make elderly patients quite different from one another," she says.

To dramatically improve assessment of geriatric patients, do the following:

• Do not allow "ageism" to bias your assessment.

Functional disability or confusion is not a consequence of aging, Hayes underscores. "A history of inability to perform activities of daily living should be carefully assessed," she says.

A sudden decrease in functional ability can be an early sign of a serious illness, says Hayes. "For example, an exacerbation of congestive heart failure may interfere with an elderly person's ability to bathe and dress independently," she notes.

• Consider abnormal lab values.

"Due to the aging process, normal bodily functions are just not as efficient as they used to be," says **Kelly A. Karpik**, BSN, RN, RRT, clinical manager for the ED at Rhode Island Hospital in Providence. "Renal and hepatic systems are examples of organs that are affected with age."

You need to be aware of abnormal lab values for kidney and liver function in elderly patients, as these will affect the amount of drug to be administered, she explains. For this reason, it is important to know which drugs are metabolized by the kidneys and which are metabolized by the liver, says Karpik. "Elderly patients will have different doses of medications, determined by the kidney and liver's ability to metabolize the drugs," she adds.

For example, if kidney function is impaired in an elderly patient, creatinine clearance may be reduced, says Karpik. "If this is so, then half-life will be prolonged, and an adjustment in dose is necessary."

Karpik gives the example of the antibiotic levofloxacin, which is used to treat community-acquired pneumonia, bronchitis, and urinary tract infections. The usual dose used to treat pneumonia is 500 mg for seven to 14 days, but while an elderly patient with reduced creatinine clearance would be given the same initial dose of 500 mg, subsequent doses would be only 250 mg per day, based on a creatinine clearance of 20-49 ml/min, she notes.

• Assess liver and kidney function.

In many elderly patients, there is a diminished ability to metabolize medications due to aging body systems, she says. "If you couple that with impaired renal and/or hepatic function due to pathology, then you can surely achieve therapeutic medication effect with a lower dose of almost all medications."

For instance, an adult male patient might receive a 2 mg dose of lorazepam for anxiety, whereas an elderly male patient might have the same effect achieved with only 0.5 mg, says Karpik.

• Avoid being influenced by the patient's interpretation of his or her own symptoms.

If an elderly man tells you he has "the flu," ask what specific symptoms he is experiencing.

"Pneumonia may be the hidden problem," says Hayes. "Often the problem is much more serious than the elderly patient is willing to admit."

• Take a thorough medication history.

If an elderly patient reports confusion, dizziness,

EXECUTIVE SUMMARY

Assessment of elderly ED patients is challenging because physical assessment can appear fine although a life-threatening illness or injury might exist. Also, differentiating signs of serious illness from normal aging can be difficult.

- If patients report a decreased ability to perform daily activities, carefully assess for underlying illness.
- Lower medication doses may be needed for patients with impaired liver or kidney function.
- Medical conditions can increase or decrease the rate of absorption of medications, so adjust dosages accordingly.

SOURCES

For more information on assessment of geriatric patients, contact:

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falls, or fluid and electrolyte imbalances, remember that the most commonly prescribed drugs for older patients can cause these symptoms, advises Hayes. These drugs include cardiovascular agents, antihypertensives, analgesics, sedatives, and laxatives.

In addition, drug interactions are increased in the elderly because of the multiple medications they use at home, says Hayes. "An accurate medication history in the ED is critical," she says.

The safest method to prevent errors is to always question whether the drug is needed, to check that it is the smallest possible dose, and ensure there are no drug allergies or interactions with other medications, says Hayes. "Often, older adults have many allergies," she notes.

• Remember that the patient's age and unrelated conditions may impact rate of absorption.

Drugs given intramuscularly, subcutaneously, orally, or rectally are not absorbed as efficiently as drugs that are inhaled, applied topically, or given intravenously, notes Hayes. In addition, conditions such as diabetes mellitus and hypokalemia can increase the absorption of drugs, whereas pain and mucosal edema will slow absorption, she adds.

"The extended biological half-life of drugs in older adults increases the risk of adverse reactions," says Hayes. ■

Do you keep stroke patients waiting too long?

She may be an ideal candidate for thrombolytic therapy: A woman tells triage nurses that she first noticed symptoms exactly two hours ago. But by the time the patient is appropriately assessed, the window of time for eligibility to be treated with thrombolytics has passed.

Has this occurred in your ED recently? Currently, only 2-5% of all eligible patients receive the thrombolytic drug t-PA, which was approved in 1996 for treatment of ischemic stroke within three hours of symptom onset.[1]

Although there is widespread support for the use of thombolytics in stroke, not everyone is convinced by the existing evidence, notes **Heidi Jahnke**, RN, MSN, clinical research nurse at Barrow Neurological Institute of St. Joseph's Hospital and Medical Center in Phoenix. "Some argue that this treatment should not be used until far better evidence of its benefits outweighs its harm," she says.[2] **(See resource box, p. 93, to obtain a position statement on this topic.)**

Now a new study shows that acute ischemic stroke patients treated within 90 minutes with t-PA have the best chance of recovery. Results showed that t-PA may be of some benefit to patients up to four hours after symptom onset, but those treated in a five- or six-hour window had almost no benefits.[1]

New drugs may exceed the current three-hour window, with several current clinical trials using thrombolytic agents in acute ischemic stroke for up to 24 hours, predicts Jahnke.

"We'll have to await the data analysis to see if the benefits outweigh the risks, but it would be great to have another agent to use beyond three hours." **(To review current clinical trials for stroke, go to www.clinical trials.gov. Type in "Stroke" in the "Search Clinical Trials" box.)**

If a new thrombolytic was available for use within a four- to five-hour window of symptom onset, it would significantly increase the number of patients who could be treated at the ED, says Jahnke.

"For instance, all of our 27 stroke patients in March 2004 were seen within six hours of their symptom onset," she says. "These patients potentially would have been considered for treatment if a new drug was available."

To increase the numbers of stroke patients eligible

EXECUTIVE SUMMARY

The vast majority of stroke patients come to the ED too late to be eligible to receive thrombolytic therapy. New research shows the greatest benefit occurs within 90 minutes of onset of symptoms.

- Educate nurses about the need for immediate assessment for patients with possible stroke.
- Identify patients who are eligible for treatment as quickly as possible.
- Share success stories with staff.

SOURCES/RESOURCE

For more information about assessment of stroke patients in the ED, contact:

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The American Academy of Emergency Medicine (AAEM) has issued a position statement on the use of thrombolytics in stroke patients. To access the statement, go to www.aaem.org. Click on "About AAEM," "Position Statements," "Position Statement: The Use of Intravenous Thrombolytic Therapy in the Treatment of Stroke."

for treatment, do the following:

• Educate nurses about stroke signs and symptoms.

"In our ED, we undertook a huge education program on signs and symptoms for what resembles a stroke, including headache, facial numbness, and one-sided weakness," says **Tom Garrity**, RN, an ED nurse at St. Joseph's.

All ED nurses were inserviced by the stroke neurologist and clinical educator on presentation of stroke. "These signs and symptoms are also printed on the back page of our acute stroke pathway," he says.

As nurses became aware of the full range of symptoms patients could present with, the stroke team then focused on the importance of quickly identifying patients who needed immediate assessment: those who presented within a three-hour window with ongoing symptoms, he says.

Public information campaigns about the warning signs of stroke coupled with education of paramedics has increased the number of patients coming to the ED within the three-hour time window, reports Jahnke.

• When in doubt, page the stroke team.

"When patients present with vague neurological symptoms, we ask nurses to go ahead and start the pathway and page the stroke team. The neurologist and ED physicians will further evaluate the patient," says Garrity.

• Get the computed tomography (CT) scan and blood work done immediately.

Standing orders are used for patients placed on the stroke pathway, with the average door to CT scan running about 22 minutes, says Garrity.

"Decision-making time of our neurologists on whether to give t-PA has been a source of delay in our institution, but we are trying to improve on this," he reports. "ED nurses take t-PA with us now to CT, so that the physician can order the t-PA while the patient is still in the CT area."

• Identify patients eligible for TPA.

Patients with stroke symptoms are now designated as "Stroke 1" with symptom onset of fewer than six hours, and "Stroke 2" which are patients outside of that window, says Jahnke. She estimates that the ED sees 20-25 Stroke 1 patients per month and 15-20 Stroke 2 patients.

"We treat all Stroke 1-eligible patients with t-PA, unless they decline, which are very few," says Jahnke. "We treat approximately three to nine stroke patients with thrombolytics per month, or approximately 25%-35% of the Stroke 1s."

• Use preprinted orders.

The ED uses pre-printed orders and protocols, along with a universal pager for radiology technicians and neurology physicians, says Garrity. The following are expected time frames:

— The neurology resident in the ED assesses the patient within 10 minutes.

— Labs and CT are done within an hour of the patient's arrival.

• Share success stories with staff.

"This helps reinforce to our ED staff how important this early recognition is to our patients," Garrity says.

References

1. The ATLANTIS, ECASS, and NINDS r-t-PA Study Group Investigators. Association of outcome with early stroke treatment: Pooled analysis of ATLANTIS, ECASS, and NINDS rt-PA stroke trials. *Lancet* 2004; 363:768-774.
2. Hoffman JR. Tissue plasminogen activator (tPA) for acute ischemic stroke: Why so much has been made of so little. *Med J Aust* 2003; 179:333-334. ■

Do your staff members risk misidentifying patients?

If asked, "How do you ensure that patients are not mistakenly identified before medications are given?" during an accreditation survey, would every nurse in your ED be able to answer the question?

During your next survey, you'll need to show

EXECUTIVE SUMMARY

The National Patient Safety Goals call for the use of two patient identifiers before medication administration or laboratory testing.

- Acceptable identifiers include the patient's name, identification number, or telephone number.
- Patient room numbers cannot be used as identifiers.
- When possible, ask the patient to give identifying information.

compliance with the requirement for two patient identifiers whenever medications or blood products are given and blood samples and other specimens are brought for clinical testing. The requirement is a national patient safety goal from the Joint Commission on Accreditation of Healthcare Organizations.

"The surveyors will probably ask staff what the ED is doing for patient identifiers," says **Kathleen Catalano**, director of regulatory compliance for Provider HealthNet Services in Addison, TX. "They will then observe the care given to see if staff adhere to the ED policy."

To comply, use the following practices:

• Use acceptable identifiers.

According to the Joint Commission, the intent of the two identifiers is twofold: first, to verify the correct patient for the intended procedure; and second, to match the service or treatment to that patient.

The two patient-specific identifiers must be directly associated with the patient, and the same two identifiers must be directly associated with the medication, blood products, or specimen tube.

Acceptable identifiers are the patient's name, an assigned identification number, telephone number, or other person-specific identifier such as age or Social Security number. Bar coding that includes two or more person-specific identifiers is acceptable, but patient room numbers cannot be used.

"The patient's armband can be used if it has two to three identifiers such as patient name, account number, age, and medical record number," says Catalano.[1]

At New Britain (CT) General Hospital, prior to registration, the patient's name and date of birth are used as identifiers, and after registration, name, and medical record number are used, reports **Robert G. Flade**, RN, ED director.

• Get information directly from the patient whenever possible.

"We are using the birth date and the Social Security number as identifiers. We have the patient identify themselves and give us the information, if able, in addition to checking the identification bracelet," reports **Kathie Carlson**, RN, MSN, CEN, ED manager at Sentara CarePlex Hospital in Hampton, VA.

When the patient is awake and alert, a verbal response will work as one identifier, explains Carlson. "I personally like to ask the patient to tell me their name and Social Security and birth date," she says.

If the patient is comatose, Carlson recommends using the information contained on the armband or bar code and having family members identify the patient if they are present.

If an unidentified patient is unresponsive and unable to communicate, use identifiers such as the temporary name assigned in the ED, and an account number or medical record number, advises Catalano. "These same identifiers should be matched against specimen labels, medications ordered, or blood product labels," she says.

• Address problems with electronic documentation.

At Sentara CarePlex's ED, electronic charting is used. "Our only problem currently is that we do not have two identifiers on our discharge instructions that are part of the medical record. Currently, only the patient's name is on there," says Carlson.

The vendor is fixing the problem; but meanwhile, a patient label is placed on the discharge instructions containing all the information on the patient's armband, to comply with the two-identifier requirement, she explains.

• Make identifiers accessible if the patient's chart is unavailable.

"One of the biggest concerns is that nurses also must bring the paperwork into the room with the medication," says Flade.

The ED is planning to switch to paperless charting in about two years, but currently uses paper charts, he explains. "So if the physician should happen to have the chart, the nurse cannot do treatments such as starting intravenous lines or administering medications without a piece of paper with the patient's name and date of birth," says Flade.

To address this problem, nurses use labels that are printed with the patient's name and medical record number, he reports.

• Consider using three identifiers.

"We do use three identifiers in the ED to identify patients," says Carlson. "This is done for all lab tests."

The specimen is left in the patient's room, and the person who does the collection initials the label that this is the correct patient by looking at the armband and speaking to the patient if possible, explains Carlson.

A second staff member then comes in, if not

SOURCES

For more information on complying with the requirement for two patient identifiers, contact:

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- **Kathleen Catalano**, Director of Regulatory Compliance, Provider HealthNet Services, 15851 Dallas Parkway, Suite 925, Addison, TX 75001. Telephone: (972) 701-8042, ext. 216. Fax: (972) 385-2445. E-mail: Kathleen.Catalano@phns.com.
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already in the room, and does an independent second check.

"In our system, a label is printed for each specimen required, so all labels must be matched to the armband and patient interview," she says.

The three identifiers are name, medical record number, and birth date or Social Security number, says Carlson. By using the new identification process, ED staff have discovered incorrect birthdates and the wrong Social Security numbers, such as the husband's instead of the wife's, she reports.

"We interact with the patient when possible, to elicit information directly from them," Carlson notes. "We are very careful because we want to avoid 'mis-IDs.' We just want to be cautious to make sure it is the right patient for the right test."

Reference

1. Joint Commission on Accreditation of Healthcare Organizations. 2004 National Patient Safety Goals — FAQs. Updated 3/9/04 (accessed 2004 April 28). Web: www.jcaho.org/accredited+organizations/patient+safety/04+npsg/04_faqs.htm#goal1. ■

TIP OF THE MONTH

Use a 'trauma pack' to improve care

Have you ever had to leave a trauma patient's side to obtain needed supplies? At University of Utah Hospital Clinics in Salt Lake City, a "trauma pack" is used to keep the trauma nurse in the trauma bay with the patient.

"This is a fanny pack that is kept in our automated medication dispenser and checked out when the trauma call is activated," says **Denna Collier**, MS, APRN, clinical educator for the ED.

The pack contains 1 gram ancef, 1 vial of paralytics, syringes, and appropriate dilutent for the medications. The pack also has a small pocket that nurses use to carry two 10 mg vials of morphine and two 10 mg vials of midazolam.

"This covers most of the immediate medication needs of the trauma patient," says Collier.

The ED recently moved to a new facility with small automated medication dispensers in the trauma bay, but the nurses still like to use the packs because they don't have to leave the bedside and the medications are available when they are in the radiology department, notes Collier.

After the initial resuscitation is completed, the ED nurse returns or wastes unused narcotics and sends the pack to pharmacy to be restocked.

"Having the trauma pack saves time and multiple steps for the nurse," says Collier. "The staff doesn't know how they survived before the implementation of the trauma pack."

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COMING IN FUTURE MONTHS

- Make sure heparin errors don't happen in your ED
- Update on overdoses of over-the-counter drugs
- Save time and money with point-of-care testing
- Foolproof tips to make starting IVs easier

CE instructions

Nurses participate in this continuing education program by reading the issue, using the provided references for further research, and studying the questions at the end of the issue.

Participants should select what they believe to be the correct answers, then refer to the list of correct answers to test their knowledge. To clarify confusion surrounding any questions answered incorrectly, please consult the source material.

After completing this semester's activity with this issue, you must complete the evaluation form provided in this issue and return it in the reply envelope provided in order to receive a certificate of completion. When your evaluation is received, a certificate will be mailed to you. ■

CEquestions

After reading this issue of *ED Nursing*, the CE participant should be able to:

- **Identify** clinical, regulatory, or social issues relating to ED nursing (See *Don't harm patients with high-alert drugs* and *Are you missing serious illness in older patients?* in this issue.)
- **Describe** how those issues affect nursing service delivery. (See *New sepsis guidelines urge you to revamp care: Delays can cost lives.)*
- **Cite** practical solutions to problems and integrate information into the ED nurse's daily practices, according to advice from nationally recognized experts. (See *Do your staff members risk misidentifying patients?)*

21. Which is accurate regarding caring for patients with sepsis in the ED, according to Maurene A. Harvey, RN, MPH, CCRN, FCCM, member of the Surviving Sepsis Campaign's steering committee?
A. Patients with cryptic shock do not require monitoring.
B. Serum lactate should be measured only for patients without shock.
C. All septic patients should receive drotrecogin alpha.
D. Fluid resuscitation and intravenous antibiotics should be started immediately.

22. Which is recommended to avoid high-alert drug errors in the ED, according to Susan F. Paparella, RN, MSN, director of consulting services for the Institute for Safe Medication Practices?
A. Avoid use of premixed products.
B. Use verbal orders routinely.
C. Use a single standardized concentration for insulin.
D. Increase the number of different concentrations available.

23. Which is true regarding assessment of geriatric patients, according to Kelly A. Karpik, BSN, RN, RRT, ED clinical manager at Rhode Island Hospital?
A. Lower medication dosages might be needed for patients with impaired liver function.
B. Inability to perform daily activities is a normal sign of aging.
C. If kidney function is impaired, creatinine clearance is increased.
D. Patients will have an increased ability to metabolize medications.

24. Which is accurate regarding compliance with the national patient safety goal requiring two patient identifiers?
A. The patient's room number may be used as an identifier.
B. Asking patients to state their names counts as one identifier.
C. If patients are comatose, the requirements do not apply.
D. You should avoid having family members identify the patient.

Answers: 21. D; 22. C; 23. A; 24. B.